

What is claimed is:

1. A coated phosphor filler, comprising
a plurality of individual phosphor filler particles;
5 a coating layer coated on the phosphor filler particles,
wherein the coating layer comprises a plastic substance.

2. The coated phosphor filler according to claim 1,
wherein the plastic substance comprises an optically
10 transparent epoxy composition.

3. The coated phosphor filler according to claim 1,
wherein the phosphor filler particles are stable phosphor
compound particles.

15 4. The coated phosphor filler according to claim 3,
wherein the phosphor filler particles comprise at least one
member of the garnet family, preferably $(\text{YGd})_3\text{Al}_5\text{O}_{12}$ including
 Ce^{3+} -impurities.

20 5. The coated phosphor filler according to claim 1,
wherein the phosphor filler particles are unstable phosphor
compound particles coated with a moisture-proof barrier film,
the coating layer being provided on the outer surface of said
25 barrier film.

6. The coated phosphor filler according to claim 5,
wherein the phosphor compound particles comprise at least one
of the components $\text{SrGa}_2\text{S}_4:\text{Eu}^{2+}$, $\text{SrS}:\text{Eu}^{2+}$, $(\text{Sr},\text{Ca})\text{S}:\text{Eu}^{2+}$ and
30 $\text{ZnS}:\text{Ag}$.

7. The coated phosphor filler according to claim 5, wherein said barrier film is formed of an inorganic passivation material.

5 8. The coated phosphor filler according to claim 7, wherein said inorganic passivation material includes a material selected from the group consisting of aluminium oxide, silicon monoxide, zinc sulphide or silicon nitride.

10 9. The coated phosphor filler according to claim 1, wherein the thickness of the coating layer is in the range of 2 to 6 μm , preferably 3 to 5 μm .

15 10. The coated phosphor filler according to claim 5, wherein the thickness of the moisture-proof barrier film is in the range of 0.1 to 2 μm .

20 11. The coated phosphor filler according to claim 5, wherein the thickness of said coating layer is at least twice the thickness of said barrier film.

25 12. The coated phosphor filler according to claim 5, wherein the thickness of said coating layer is 2 to 10 times the thickness of said barrier film.

13. The coated phosphor filler according to claim 2, said epoxy composition includes hydrophobic residues forming a moisture-repellent barrier.

30 14. A method for forming a coated phosphor filler, comprising

coating each of a plurality of individual phosphor filler particles with a coating layer comprising a plastic substance.

5 15. The method according to claim 14, wherein the phosphor filler particles are unstable phosphor compound particles, wherein said step of coating further comprises the steps of:

- 10 • coating said unstable phosphor compound particles with a moisture proof barrier film; and
- coating the outer surface of said moisture proof barrier film with said coating layer.

15 16. The method according to claim 15, wherein said step of coating said unstable phosphor compound particles with a moisture proof barrier film is performed by using the Wet Chemical process.

20 17. The method according to claim 16, wherein said step of coating the outer surface of said moisture proof barrier film with said coating layer is performed by physically depositing said coating layer on said moisture proof barrier film.

25 18. The method according to claim 15, wherein an inorganic passivation material is used as said barrier material.

30 19. A light emitting diode (LED) comprising a LED-chip mounted on a contact base, said LED-chip being electrically connected to a first and a second electrically conducting frame; and

a coated phosphor filler, said coated phosphor filler including a plurality of phosphor filler particles and covering said LED-chip, wherein said phosphor filler particles are coated with a coating layer comprising a plastic substance.

20. The light emitting diode (LED) according to claim 19, wherein said LED-chip is covered with a drop of said coated phosphor filler in a reflector cup provided in said first electrically conducting frame, and wherein said drop and at least a part of said first electrically conducting frame are over-moulded with an optical dome consisting of an optically transparent epoxy.

21. The light emitting diode (LED) according to claim 19, wherein said LED-chip and at least a part of said first electrically conducting frame are over-moulded with a mixture of a plurality of said individual phosphor filler particles and an optically transparent epoxy, said mixture forming an optical dome.

22. The light emitting diode (LED) according to claim 19, wherein the plastic substance is an optically transparent epoxy composition.

23. The light emitting diode (LED) according to claim 19, wherein said phosphor filler particles are unstable phosphor compound particles coated with a moisture-proof barrier film, the coating layer being provided on the outer surface of said barrier film.

24. The light emitting diode (LED) according to claim 19, further comprising an optical dome, said optical dome covering said LED-chip and consisting of an epoxy material.

5 25. The light emitting diode (LED) according to claim 19, said barrier material includes an inorganic passivation material.

10 26. The light emitting diode (LED) according to claim 25, said inorganic passivation material including a material selected from the group consisting of aluminium oxide (Al_2O_3), silicon monoxide (SiO), zinc sulphide (ZnS) or silicon nitride (Si_3N_4).

15 27. The light emitting diode (LED) according to claim 19, said epoxy composition includes hydrophobic residues forming a moisture-repellent barrier.